

# Effectiveness of telemedicine interventions for the most prevalent chronic diseases in German primary care – a protocol for an umbrella review

Timpel, Patrick<sup>1,2</sup>; Harst, Lorenz<sup>3</sup>

<sup>1</sup>Prevention and Care of Diabetes, Department of Medicine III, Faculty of Medicine Carl Gustav Carus, Technische Universität Dresden, Fetscherstraße 74, 01307 Dresden

<sup>2</sup>Dresden International University, Division of Health Care Sciences, Center for Clinical Research and Management Education, Dresden, Germany

<sup>3</sup>Research Association Public Health Saxony, Center for Evidence-Based Healthcare, Faculty of Medicine Carl Gustav Carus, Technische Universität Dresden

## Background

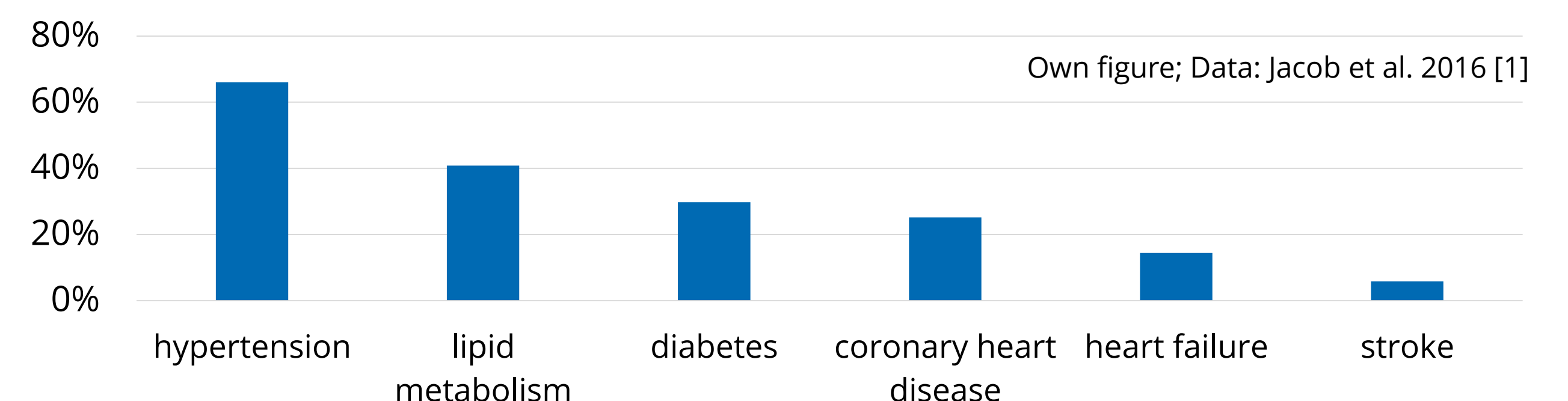
### Public health relevance

- Chronic conditions prevalent in patients > 65 (Fig.1) [1] and expected to rise by 2030 (e.g. heart failure/ cardiac insufficiency (+11.6%), cardiomyopathy (+9.3%), other cardiovascular diseases (+7.3%) and diabetes (+6.4%)) [2]
- Telemedicine expected to facilitate access to relevant target groups and improve overall effectiveness of care [3,4]
- Need for individualised and continuous monitoring and self-management support of patients in chronic care → chronic diseases are the ideal setting for the development and implementation of telemedicine approaches [5]

### Research gap

- No clear understanding of the processes through which the applications work [6]
- Many studies suffer from methodological shortcomings and weaknesses of study designs [7]
- Fast evolving body of evidence requiring guidance for care providers

Fig.1: Prevalence of selected chronic diseases among patients over 65 years of age treated in German general practices



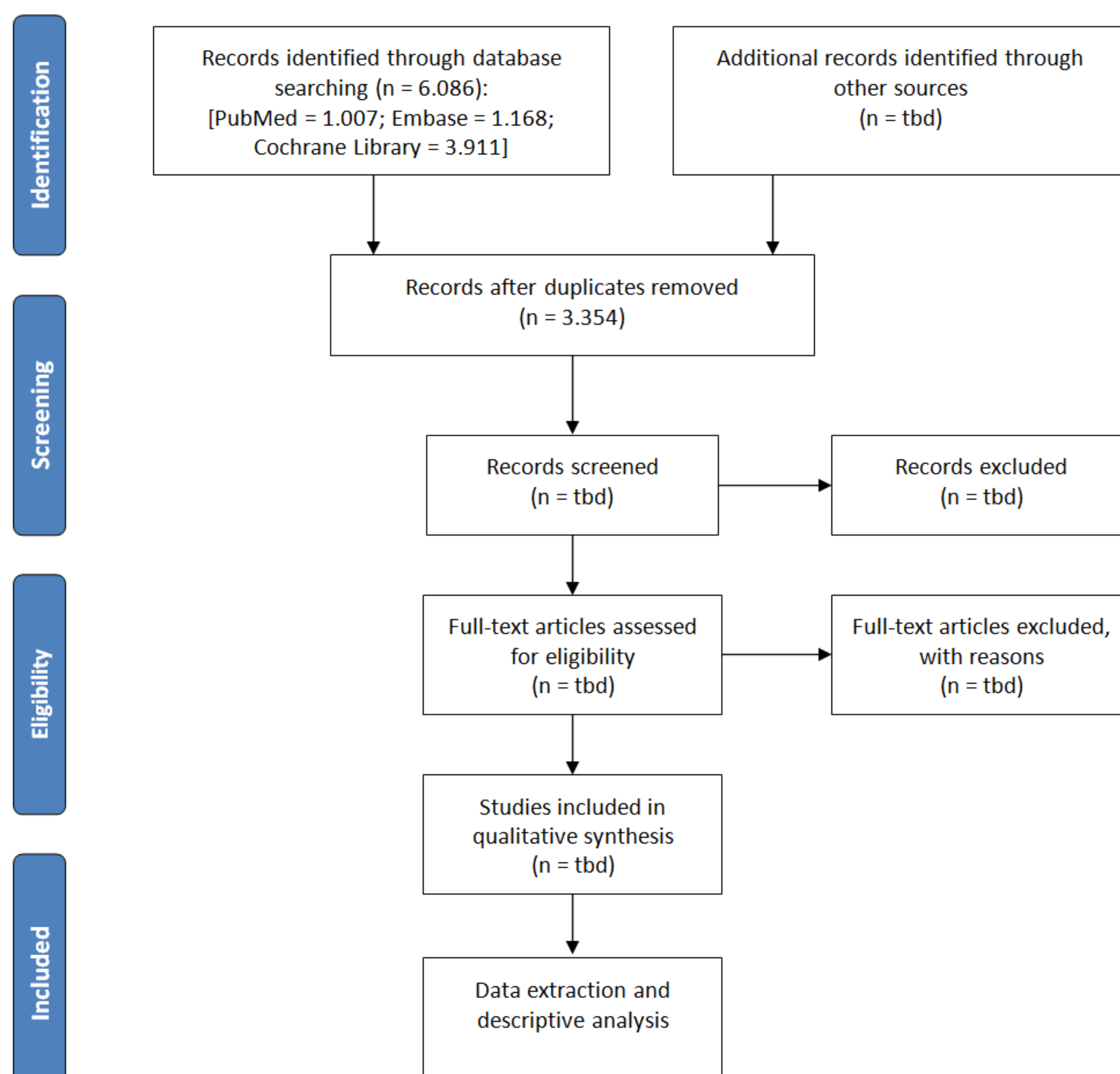
## Objectives

- To identify and synthesise relevant international high-level evidence on the effectiveness of telemedicine solutions and their components on the most common chronic diseases in Germany (Fig. 1) by conducting an *umbrella review* [8]

## Methods and Preliminary Results

PICOS-Criteria	
<b>Patients</b>	patients with at least one of the four most prevalent chronic diseases
<b>Intervention</b>	telemedicine intervention specified as (1) use of ICT, (2) covering distance and (3) involvement of health care provider [9]
Control, Outcome & Time <i>Not applied</i>	
<b>Study Design</b>	systematic review of RCTs or a meta-analysis

Eligibility	
<b>Inclusion</b>	<b>Exclusion</b>
Primary studies applying telemedicine (specified as (1) use of ICT, (2) covering distance and (3) involvement of health care provider [9])	No telemedicine applied
Study design being either a systematic review of RCTs or a meta-analysis	Study designs other than systematic reviews of RCTs or meta-analysis, including systematic reviews of observational studies
Population (with at least one of the four most prevalent chronic diseases)	Population not matching or not reported
Primary aim: effectiveness of telemedicine	Efficacy or studies primarily investigating costs or cost-effectiveness, or feasibility
Humans ≥ 18 years	Animals
Median OQAQ ≥ 14	Median OQAQ < 14
Publication in English	Other language



\* tbd = to be done

Qualitative Assessment		
Oxford Quality Assessment Questionnaire (OQAQ) [10]		
Data Extraction		
Basic information		
Author	Study design	Publication year
Characteristics		
Country (patient recruitment)	Sites	
Number of original studies	Study design of original studies	Number of patients
Setting (e.g. primary care clinic, reha, community)	Study population	Diagnosis / target disease
Telemedicine application studied (Intervention)	Telemedicine component	Comparator
Follow Up / duration		
Outcome	Statistical analysis	Effect size and significance

## References

- Jacob, L., J. Breuer, and K. Kostev, Prevalence of chronic diseases among older patients in German general practices. *GMS German Medical Science*, 2016. 14: p. Doc03.
- Gerber, C., et al., Gutachten zur Entwicklung des Versorgungs- und Arztbedarfs in Sachsen. 2016: Berlin.
- Eysenbach, G., What is e-health? *J Med Internet Res*, 2001. 3(2): p. e20.
- Eng, T.R., eHealth Research and Evaluation: Challenges and Opportunities. *J. Health Commun*, 2002. 7(4): p. 267-272.
- Hanlon, P., et al., Telehealth Interventions to Support Self-Management of Long-Term Conditions: A Systematic Metareview of Diabetes, Heart Failure, Asthma, Chronic Obstructive Pulmonary Disease, and Cancer. *J Med Internet Res*, 2017. 19(5): p. e172.
- Yasmin F, Banu B, Zakir SM, et al. Positive influence of short message service and voice call interventions on adherence and health outcomes in case of chronic disease care: a systematic review. *BMC Med Inform Decis Mak* 2016; 16: 46
- Dinesen, B., et al., Personalized Telehealth in the Future: A Global Research Agenda. *Journal of Medical Internet Research*, 2016. 18(3): p. e53.
- Aromataris, E., et al., Summarizing systematic reviews: methodological development, conduct and reporting of an umbrella review approach. *Int J Evid Based Healthc* 2015. 13(3): p. 132-140.
- Otto, L., et al. Towards a Unified Understanding of eHealth and Related Terms – Proposal of a Consolidated Terminological Basis. in *Health Informatics Europe*. 2018. Madeira: HEALTHINF.
- Oxman, A.D. and G.H. Guyatt, Validation of an index of the quality of review articles. *J Clin Epidemiol* 1991. 44(11): p. 1271-1278.